

Independent claims 1 and 15-17

The Examiner rejected independent claims 1 and 15 – 17 under 35 U.S.C. § 102(e) as being anticipated by Buffam (United States Patent Number 6,185,316, hereinafter “Buffam”). Claims 2, 3, and 11 – 14 have been cancelled, without prejudice. Regarding independent claim 1, the Examiner asserts that Buffam meets the claim limitations through the following citations from Buffam: column 11, line 58 to column 12, line 3; column 13, line 35 to column 14, line 65; column 18, line 64 to column 19, line 23; and column 22, line 65 to column 23, line 40. Applicants note that the Examiner cites the same text regarding independent claims 15 – 17.

Applicants will show that Buffam does not teach that true image points, false image points, encoding keys, or any combination of the above is a function of the acquired signals, wherein said function is defined by a challenge. Therefore, Applicants respectfully submit that Buffam does not disclose or suggest responses that are a function of the acquired signals, wherein said function is defined by a challenge, as required by independent claims 1 and 15 – 17, as amended.

Applicants read Buffam as teaching selectively combining “true image points” (TIPs) of an original image with “false image points” (FIPs). A transient template is formed through the selective combination of TIPs and FIPs. See, for instance, col. 8, lines 12 – 22 of Buffam. The FIPs are plausible impostors of the true image points. See col. 8, lines 40 – 52. The transient template is used during decoding to determine whether a user credentials, which contains the transient template, compares favorably with TIPs determined from a claimant (i.e., a person) to authenticate the claimant. See FIG. 4 and associated text of Buffam. Thus, Buffam teaches to selectively combine TIPs of an original image with FIPs in order to encode and subsequently decode a transient template used for authentication.

Regarding TIPs, Buffam teaches that TIPs are extracted from discrete informational points of an original image from a claimant. See col. 12, lines 4-10 of Buffam. This is further illustrated by FIG. 1 of Buffam where the only input to the True Data Points Transformer 125 is the output from the Imager 110. There is no input for challenges. Thus, Buffam does not suggest or disclose that true image points are a function of the acquired signals, wherein said function is defined by a challenge, as required by independent claims 1 and 15-17, as amended.

Regarding FIPs, Buffam teaches that FIPs are *highly random content* that are plausible impostors for TIPs. See col. 13, line 63 to col. 14, line 7 of Buffam. Additionally, as is illustrated in FIG. 1, False Image Point Generator 130 does not have an input signal for challenges. Thus, Buffam does not suggest or disclose that false image points are a function of the acquired signals, wherein said function is defined by a challenge, as required by independent claims 1 and 15 – 17, as amended.

Regarding the encoding keys, Buffam teaches an encoding key based on pre-selected, one-way key generation. For instance, in col. 9, lines 46 – 53, Buffam states, “false image point generation can create an encoding key from the false image points using a preselected key generation technique, for example, a one-way technique, such as a hashing technique. Furthermore, this method can include encrypting plaintext with the encoding key to produce ciphertext using a preselected pseudo-random technique and then appending the plaintext and the ciphertext to the transient template.” This is further illustrated in FIG. 1, where the only input to the Key Gen. 162 is the output of the Data Point Conditioner 135. Thus, Buffam does not suggest or disclose that encoding keys are a function of the acquired signals, wherein said function is defined by a challenge, as required by independent claims 1 and 15 – 17, as amended.

Applicants note that the selective combination of both TIPs and FIPs is not a function of acquired signals, wherein the function is defined by a challenge, as required by independent claims 1 and 15 – 17, as amended. In Buffam, even if the Image Point Combiner 145, which combines TSPs, FIPs and potentially ciphertext, could be considered a “function,” there are no challenges that define this function. This can be seen in FIG. 1 of Buffam, where the inputs to the Image Point Combiner 145 includes the TSPs 122, FIPs 140 and ciphertext 166.

In conclusion, Buffam does not teach that true image points, false image points, encoding keys, or any combination of the above is a function of the acquired signals, wherein said function is defined by a challenge. Independent claims 1 and 15-17, as amended, require responses that are a function of the acquired signals, wherein said function is defined by a challenge.

Thus, Buffam does not disclose or suggest responses that are a function of the acquired signals, wherein said function is defined by a challenge, as required by independent claims

1 and 15 – 17, as amended.

New claims 20 – 22

5 New claims 20 – 22 have been added to more particularly point out and distinctly claim various features of the invention, consistent with the scope of the originally filed specification, in order to give applicants the protection to which they are entitled. No new matter is introduced. Support for this material is set forth at pages 6 – 14 of the originally filed specification. The Examiner has previously considered the subject matter presented in new claims 20 – 22 when rejecting, for example, claims 1 and 14 – 17. More specifically, claims 20 – 22 recite the step of
10 “authenticating a received signal by comparing a function of the acquired signal, wherein said function is defined by a challenge, to a response generated as a result of said challenge.”

As applicants previously noted, Buffam does not teach that true image points, false image points, encoding keys, or any combination of the above are a function of the acquired signals, wherein said function is defined by a challenge, as required by new independent claims 20-22. Thus,
15 Buffam does not disclose or suggest authenticating a received signal by comparing a function of the acquired signal, wherein said function is defined by a challenge, to a response generated as a result of said challenge, as required by new independent claims 20 – 22.

Allowance of claims 20 – 22 is believed to be warranted.

20 Dependent claims 4 – 10 and 18 – 19 and New Dependent claims 23 – 31

Dependent claims 4 – 10 and 18 – 19 were rejected under 35 U.S.C. § 102(e) as being anticipated by Buffam. New claims 23 – 33 have been added to more particularly point out and distinctly claim various features of the invention, consistent with the scope of the originally filed specification, in order to give applicants the protection to which they are entitled. No new matter is
25 introduced. Support for this material is set forth at pages 6 – 14 of the originally filed specification.

Dependent claims 4 – 10 and 23 – 25, claims 18 – 19 and 28 – 29, claims 26-27, claims 30 – 31, and 32 – 33 are dependent on claims 1, 17, 15, 20, and 21, respectively, and are therefore patentably distinguished over Buffam because of their dependency from amended

independent claims 1, 17, 15, 20, and 21, for the reasons set forth above, as well as other elements this claim adds in combination to its base claim.

Conclusion

5 All of the pending claims, i.e., claims 1, 4 – 10 and 15 – 33, are in condition for allowance and such favorable action is earnestly solicited.

If any outstanding issues remain, or if the Examiner has any further suggestions for expediting allowance of this application, the Examiner is invited to contact the undersigned at the telephone number indicated below.

10 The Examiner's attention to this matter is appreciated.

Respectfully submitted,

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VERSION MARKED TO SHOW ALL CHANGES

Please amend the claims as indicated below:

- 5 1. (Amended) A system for [authenticating one or more] generating a response from an
acquired signal[s] and a challenge, the system comprising:
[one or more] an acquisition device[s] for creating a signal representation of said
acquired signal [one or more input signals, a signal output connected to one or more application
devices]; and
10 a responder that receives a challenge and generates said response that is a function of
said signal representation, wherein said function is defined by said challenge [receiving the signal
representations from the acquisition devices, and, in response to challenges received from one or
more challenge generator devices, and the responder sending one or more responses that are a
function of the signals and the challenges, the signal representations capable of being verified by
15 comparing the responses to the function of the signals and the challenges].
2. (Cancelled)
3. (Cancelled)
- 20 4. (Amended) A system, as in claim 1, where the acquired signal is one [or more] of the
following: a biometric signal, a fingerprint image, a face image, an iris image, an audio signal, and a
speech signal.
- 25 5. (Amended) A system, as in claim 1, where the acquisition device is one [or more] of
the following: a camera, a biometrics sensor, a semiconductor-based fingerprint sensor, a micro-
mechanical sensor, and a microphone.

6. (Amended) A system, as in claim 1, where the responder has two or more selectable functions, the selectable functions being selected by one or more configuration inputs and the selectable functions modifying the challenge.

5 7. (Amended) A system, as in claim 6, where the configuration inputs are connected to an external source that selects the selectable function.

8. (Unamended) A system, as in claim 7, where the external source includes one or more of the following: a set of switches, a jumper block, a clock, a global positioning system signal, an
10 external computer, and a pseudo-random number generator.

9. (Unamended) A system, as in claim 1, where the responder function includes one or more of the following: a checksum, a pseudo-random sample, a block of contiguous samples, and a function of selected samples of the signal.

15 10. (Unamended) A system, as in claim 1, where the acquisition device and the responder are both located on a single semiconductor chip.

11. (Cancelled)

20 12. (Cancelled)

13. (Cancelled)

25 14. (Cancelled)

15. (Amended) A method for [authenticating one or more] generating a response from an acquired signal[s] and a challenge, comprising the following steps:

creating a signal representation of [one or more input] said acquired signal[s];
[creating] receiving said challenge[s]; and
creating said response[s] that [are] is a function of the signal representation, wherein
said function is defined by said challenge [input signals and the challenges; and
5 verifying the responses by comparing them to the function of the input signals and
the challenges].

16. (Amended) A computer product for [authenticating one or more] generating a
response from an acquired signal[s] and a challenge that performs the following steps:

10 creating a signal representation of [one or more input] said acquired signal[s];
[creating] receiving said challenge[s]; and
creating said response[s] that [are] is a function of the signal representation, wherein
said function is defined by said challenge [input signals and the challenges; and
15 verifying the responses by comparing them to the function of the input signals and
the challenges].

17. (Amended) A business process for authenticating [one or more acquired] an acquired
signal[s], the process comprising the steps of:

20 creating a signal representation of [one or more input] said acquired signal[s];
creating a challenge[s];
creating a response[s] that [are] is a function of the signal representation, wherein said
function is defined by said challenge; and
authenticating the signal representation by comparing the response to the function of
the acquired signal [input signals and the challenges; and
25 verifying the responses by comparing them to the function of the input signals and
the challenges].

18. (Amended) A business process, as in claim 17, where the [input] acquired signal[s] includes any one [or more] of the following: [one or more] a fingerprint[s], face, iris, and voice.

19. (Unamended) A business process, as in claim 17, where the challenge response functions include any one or more of the following: signal values at discrete points, a mathematical function of discrete signal values, a hash of the signal values, and a checksum of the signal values in a delimited area.

20. (New) A system for authenticating an acquired signal, comprising:
a challenge generator for generating a challenge; and
a verifier for authenticating a received signal by comparing a function of the acquired signal, wherein said function is defined by said challenge, to a response generated as a result of said challenge.

21. (New) A method for authenticating an acquired signal, comprising the following steps:
creating a challenge; and
authenticating a received signal by comparing a function of the acquired signal, wherein said function is defined by said challenge, to a response generated as a result of said challenge.

22. (New) A computer product for authenticating an acquired signal that performs the following steps:
creating a challenge; and
authenticating a received signal by comparing a function of the acquired signal, wherein said function is defined by said challenge, to a response generated as a result of said challenge.

23. (New) A system, as in claim 1, wherein said challenge identifies said function from two or more functions.

24. (New) A system, as in claim 1, wherein said challenge identifies one or more parameters of said function.

25. (New) The system, as in claim 1, wherein said signal representation can be verified by comparing said response to said function of the signal representation and the challenge.

26. (New) A business process, as in claim 15, wherein said challenge identifies said function from two or more functions.

27. (New) A business process, as in claim 15, wherein said challenge identifies one or more parameters of said function.

28. (New) A method, as in claim 17, wherein said challenge identifies said function from two or more functions.

29. (New) A method, as in claim 17, wherein said challenge identifies one or more parameters of said function.

30. (New) A system, as in claim 20, wherein said challenge identifies said function from two or more functions.

31. (New) A system, as in claim 20, wherein said challenge identifies one or more parameters of said function.

32. (New) A method, as in claim 21, wherein said challenge identifies said function from

two or more functions.

33. (New) A method, as in claim 21, wherein said challenge identifies one or more parameters of said function.

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